

2021-01-24

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Taylor & Francis Online

<https://doi.org/10.1080/19393210.2021.1872110>

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Fluoride contamination of selected food crops, domestic water, and milk consumed by communities around mount Meru in Northern Tanzania

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DOI: <https://doi.org/10.1080/19393210.2021.1872110>

Abstract

This study assessed fluoride levels in domestic water, commonly consumed food crops, cow's, and human milk. Samples of vegetables were collected from farmer's home gardens, green banana from local markets, maize flour, and domestic water from households, while cow's and human (breast) milk were obtained from cows and lactating mothers. Fluoride levels were determined by using a fluoride ion-selective electrode. Fluoride levels were 0.03 ± 0.02 mg/kg in maize, In leafy vegetables the highest levels were found in nightshade 0.081 ± 0.008 mg/kg, while for banana varieties the highest levels were found in in East African highland 0.025 ± 0.004 mg/kg. Levels in cows and human breast milk were 0.34 ± 0.2 mg/L and 0.077 ± 0.06 mg/L, respectively. Levels in domestic and public tap water were 4.57 ± 0.4 mg/L and 4.74 ± 0.8 mg/L, respectively. Study provided useful knowledge of fluoride levels in several crops, milk, and domestic water.

Keywords

Fluoride; Contamination; Food crops; Domestic water; Milk